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THE PLANT DISEASE REPORTER

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Volume XII **Number 4**

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BUREAU OF PLANT INDUSTRY
UNITED STATES DEPARTMENT OF AGRICULTURE

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AN INFECTIOUS CHLOROSIS OF ROSES

By R. P. White (New Jersey)

In order to call to the attention of plant pathologists the occurrence of an infectious chlorosis of rose, this brief description of the symptoms and nature of the trouble is being written.

The general condition of diseased plants is a dwarfing, lack of root development, inhibition of "breaks", reduced blooming, and general lack of vigor. The symptoms, as expressed in the foliage, are (1) dwarfed leaflets, (2) distortion of the leaflets, (3) pronounced clearing of the veins, especially near the midrib, giving the appearance of a solid yellow area. Upon magnification of the yellowed areas, however, it is readily seen to be a yellowing which is limited to the veins and veinlets, the lamina retaining its normal green. The thickness of the leaf in these areas is reduced.

Slight necroses may occur in these areas, especially if the area is extended, and if it occurs near the margin of the leaf. Isolated areas midway between the midrib and leaf margin are not uncommon. Infection is frequently limited to one side of the leaflet, in which case unequal growth of the lamina takes place causing the leaf to bend. Isolated areas of infection and severe infection along the midrib cause the leaf to pucker.

The injury is quite distinct from red spider injury or any other insect injury known or any fungous disease previously described. There has been no correlation between the presence of insects or of fungous and bacterial organisms with the symptoms.

The infectious nature of the trouble has been demonstrated by the transfer of buds from diseased plants to healthy plants. Ten weeks after the transfer of diseased buds the new growth on about 45 per cent of the originally healthy plants was showing disease symptoms, identical with those symptoms exhibited by the plant from which the diseased bud was taken. In all cases shoots from the diseased buds were diseased, while an equal number of buds of the same varieties, but taken from healthy plants, produced perfectly normal growth. The disease has also been transmitted by grafts as well as by buds.

As far as is at present known the disease is limited to roses grown under glass. It has been observed occurring only upon three varieties, namely, Madame Butterfly, Premier, and Templar, but has been successfully transferred by buds, to Briarcliff.

Two severe cases of this trouble were noted this past winter, one in Massachusetts and one in New Jersey, the source of the stock being the same in both instances. Plants bloom only about 10 per cent of normal or less and blooms that are produced are short stemmed, decidedly off-color, and small, and are sold as seconds.

All the infected material in New Jersey has been burnt with the exception of plants retained for experimental use. The geographical distribution of the trouble has not been determined, but every effort should be made to determine the presence or absence of the disease in the large propagating centers of the country. Unknowingly, it probably has been and will continue to be widely distributed unless drastic measures are taken to effect a clean up of infected stock and bud sources.

FROST INJURY TO DECIDUOUS TREES IN NEW JERSEY

By R. P. White

A large number of inquiries have been received this spring concerning a condition of a wide variety of deciduous trees and shrubs which resembles sunscald. These requests for information have come largely from the northern part of the state, and upon examination of the shade trees in many towns and cities in northern New Jersey, the reason for concern was very evident.

Many trees are already dropping a good proportion of their leaves and others are decidedly brown as far as they can be seen. The injury is most serious on maples and beeches, but has also been noted on hawthorn, horsechestnut, cherry, and Philadelphus. The outstanding characteristic of the injury is a browning and drying out of the lamina of the leaves. In some cases the injury is located around the margins of the leaves, but generally the injury appears as irregular areas between the main veins and extending for various distances toward the base. Isolated areas may occur in the lamina. The tissue dries rapidly, becomes very brittle, and drops out.

Not all trees of the above species are injured. Many cases were found where trees with perfectly sound foliage were standing in close proximity to trees of the same species and approximately of the same age and size which were very severely injured. Upon inquiry it was found that those trees which were injured were individuals which produced an early crop of leaves. Trees which escaped injury were in all cases those which leaved much later.

This injury was evidently due to a series of late frosts at the time the buds were swelling and the young leaves were unfolding. Trees which were retarded in leaf development escaped the injury.

HOLLYHOCK RUST (PUCCINIA MALVACEARUM)

An unusual number of specimens of hollyhock rust have been received from Maryland, the District of Columbia, and Virginia. Wingard reports (June 15) that "all of the hollyhocks in southwest Virginia are severely rusted." Haskell reports that this is the first year during the six years that he has been growing

hollyhocks in his garden in Washington that the plants have been attacked by rust and that his plants and those of neighbors are severely rusted.

BLIGHT OF LILIUM AURATUM IN VIRGINIA

"Auratum lilies that are being grown by florists in Roanoke show severe injury as a result of infection by a species of Sporotrichum. The flower buds are destroyed when they are very young." (Wingard, June 15)

NEMATODES ON BULBS

Tylenchus dipsaci was found in narcissus bulbs received by the Office of Nematology and Technology from Ohio, Illinois, and Washington. Aphelenchus apiculatus was also found in narcissus bulbs from Illinois.

BACTERIAL CANKER OF TOMATO (APLANOBACTER MICHIGANENSE) IN GEORGIA

Boyd reports (June 15) that bacterial canker is even more severe than last year in the infested fields in Coffee County and has also been observed in two additional counties, Tift and Thomas. The Thomas County plants came from the infested Coffee County farm; the Tift County plants were from local seed.

RUST OF CENTAUREA

Bullaria cyani (Puccinia cyani), on Centaurea cyanus was collected in Washington, D. C., June 6. Determination by Miss Fenner.

POTATO BLACKLEG (BACILLUS ATROSEPTICUS) SEVERE IN MISSOURI

"Blackleg is more severe in Missouri this year than ever before, except in fields where certified seed has been used. Prof. J. T. Quinn, of the Horticulture Department, Missouri College of Agriculture, has made a complete survey of the large potato-growing district near Orrick, east of Kansas City,

and reports that in fields where uncertified northern grown seed has been used the percentage of blackleg will average as high as 10 per cent, whereas in fields where certified northern grown seed has been used no blackleg is present. Local fields around Columbia show as high as 50 per cent infection where uncertified seed has been used, while no blackleg is present in fields seeded with certified stock. The value of using certified seed is so evident this year that it is probable that but very few commercial planters will use any other hereafter." (Scott, July 1)

PINK ROOT OF ONION (FUSARIUM MALLI) IN ARKANSAS

"Extremely abundant on Bermuda onion plants shipped in from Texas. Present observations indicate that diseased plants do not outgrow trouble, have poor root systems and make poor growth." (June 15)

GEORGIA BEAN DISEASE SURVEY

The spring bean crop of south Georgia was materially damaged by the unusually cold, wet weather which lasted up to the beginning of harvest, around May 10-15. The crop that did set was further damaged by diseases peculiar to such weather conditions, i.e., the bacterial halo blight and anthracnose. Halo blight was first observed on April 20, being pointed out to the writer by Miss Florence Hedges who was conducting a bean survey at the time. This disease spread rapidly through the crop until the advent of warmer weather, and inflicted more loss to the early crop than all other diseases combined. The loss in different fields ranged from a trace to 100 per cent, some fields being plowed up without a single harvest. At least 90 per cent of the commercial fields showed this disease.

Bacterium phaseoli blight ranked second in amount of damage to the early crop. Although the disease was evident in its incipient stage from the outset of the season, it did not assume epidemic form until the advent of warmer weather around May 15. Its spread was rapid during the picking period of the early crop and throughout the later fields.

Anthracnose was common in the early crop, but produced only slight loss except in one 10-acre field where the loss is estimated as 10%. It was evident that infected seed accounted for the heavy primary infection.

The estimated loss from halo blight to the early crop was about 35%; to the later plantings, negligible. The loss from B. phaseoli blight is estimated at 5% for the early crop, and around 15% for the late crop. Root and stem rots were practically absent in the early fields, with only a trace of S. rolfsii wilt in the late plantings. Macrophoma blight and Fusarium root rots have not been observed. Rust is common on pole beans. No fungous leaf spots, other than anthracnose spots, have been observed.

On May 22, a third bacterial leaf and stem blight was observed in a single field of Hastings Stringless Green Pods, in Thomas County. It was plainly evident that the disease had spread from a heavily infected planting of dwarf lima beans onto the snap beans, only three or four rows of the latter being heavily infected. The remainder of the small field showed only scattered infection. Miss Hedges reported that the symptoms resembled those of the lima bean disease caused by Bacterium vignae Gardner & Kendrick (B. viridifaciens Tisdale & Williamson).

PEA ROOT ROT
(Aphanomyces euteiches)

Less than usual at this time in Wisconsin. One field reported from near Columbus, Dodge County. Peas in general look fine at this time. More reports by next month.
Trace of mildew on specimen received from Sauk City. (Vaughan)

DAMPING OFF AND SEED ROTTING OF COTTON IN ARKANSAS

As usual much early planted cotton failed to give a stand and had to be replanted. This was probably due to Rhizoctonia. Extremely cold weather during much of the spring was unfavorable to cotton germination. (V. H. Young June 15, 1928.)

MUSKMELON AND WATERMELON DISEASES AS REPORTED FROM GEORGIA.

O. C. Boyd of Georgia reports as follows under date of June 22:

Muskmelon. Macrosporium leaf spot, root-knot, and an unidentified leaf spot, were observed for the first time this year in two fields in Thomas County and one field in Mitchell County. The oldest melons are beginning to net.

Watermelon. A few plants affected with Fusarium wilt, and the early stages of anthracnose were observed in Thomas and Brooks Counties on June 2. On June 13, anthracnose was found spreading out on the younger leaves. Also, scattered infections of Cercospora and Phyllosticta leaf spots were noticed on the latter date. Anthracnose was observed as far north as Tift County, -rather early for that latitude. Wilt does not seem as prevalent this year as usual.

APPLE SCAB REPORTS

Maine: The dates of applications have been a week later than normal for 1910-1927. Ascospores became mature enough to be discharged in water mounts, some time between March 22 and May 8.

After the buds began to open there was no rain until May 20. Yet by June 11 40 per cent of the leaves were showing infection mostly apparently the result of inoculation by conidiospores. Either the first two incubation periods, following ascospore and conidiospore inoculation respectively, averaged about eleven days or else some ascospores were discharged because of dew or fog, not waiting for rain. The delayed dormant on May 8 was wasted but the prepink on May 14 was necessary for scab control. (D. Folsom, July 1)

Massachusetts: Apple scab severe, June 7, on leaves of trees not sprayed in Hampshire and in Bristol counties.(W. L. Doran, June 7)

Virginia: Unsprayed orchards in southwest Virginia show a fairly heavy scab infection on both leaves and fruits. (S. A. Wingard, June 15).

West Virginia: Where spray applications were improperly applied and in neglected orchards scab was abundant by June 15. The wild crab, also has a heavy infection. (Archer, July 1).

Illinois: Very serious now throughout the state. Dry weather early in the season prevented early scab infection except in extreme south where pedicel infection was common. Heavy rains in late May and early June started another infection period which became extremely serious since orchardists are not able to spray. Leaf and fruit infection both serious. (Anderson, July 1).

Wisconsin: Very light infection this year owing to general drought. (Vaughan July 1).

North Dakota: A year ago at this date scab was very common. It can scarcely be found now. (Brentzel, June 15).

FIREBLIGHT (BACILLUS AMYLOVORUS) ON APPLE AND PEAR

West Virginia: Blossom and twig blight has been severe over the entire state. The Jonathan variety is especially susceptible. The wild crab and the English haw are also severely affected. (Archer, July 1).

Illinois: Since my previous report on the scarcity of this disease, it has become abundant and serious. Twig blight in Transparent and Jonathan is especially serious in southern Illinois. Fruit blight on apples an inch or so in diameter is very common. Northern Illinois has more blight on apples than usual judging from reports. (Anderson, July 1).

Wisconsin: Very light infection this year. Associated with lack of rain during early growing period. Specimens received from Pierce and Crawford. (Vaughan, July 1).

Iowa: Early and severe this year. (Porter, May 28).

Missouri: Fireblight is again quite scarce in Missouri. In the central part of the state little or no blossom infection on apples occurred, with

with only occasional blighting of pear twigs. It is slightly more severe in southern Missouri where the conditions were more favorable for its development earlier in the season. One case that was somewhat unusual was the blighting of apple to such an extent as to invade the fruit. Numerous green apples measuring one to one and one-half inches in diameter were partially or completely blighted. I have never heard of serious blighting of green apple fruits, this being regarded as rather a rare form of injury. (Scott, July 1).

RUST (GYMNOSPORANGIUM JUNIPERI-VIRGINIANAE) ON APPLE

Rust is unusually abundant in several states, according to reports.

West Virginia: As yet rust has not made its appearance; except for the occurrence in two orchards of a few scattered pycnia. (Archer, July 1).

Illinois: Cedar apples were more abundant on cedars in southern Illinois than I had ever seen before. The infection on apples first noticed June 5, is extremely heavy as would be expected. A year ago it was hard to find a cedar apple due to two dry seasons. Last year was very wet and conditions for infection were very favorable. This spring ideal conditions for apple infection occurred. (Anderson, July 1).

Iowa: Unusually severe this season on Wealthy. Also earlier than common. About 5 per cent damage. (Porter, June 1)

Missouri: Cedar rust seems to be unusually severe throughout the state this season. Numerous complaints have come in from all sections especially from the apple-growing region of southwest Missouri. Pycnial stage is now (June 23) quite well developed, the leaves being well covered with lesions. Pycnia are abundant on crabs and species of Crataegus. The last of May and June has been marked by heavy rainfall, the total for the Central part of the state being nearly eleven inches for June alone. High humidity with considerable wind throughout this period has probably contributed to the wide dissemination of inoculum. (Scott, July 1).

BLOTCH (PHYLLOSTICTA SOLITARIA) IN ILLINOIS

"Very abundant in southern Illinois on susceptible varieties, especially Duchess (Oldenberg). Weather ideal for blotch with 12 inches of rain in two weeks during the first part of June. First infection observed May 24 near Ozark, Illinois, on Duchess. Very light at that time. Appeared serious about June 15. Blotch has been a minor disease for three years. It is now decidedly important again. Wet weather last year started new cankers on twigs." (H. W. Anderson, July 1).

FROG-EYE (SPHAEROPSIS MALORUM) ABUNDANT IN ARKANSAS AND ILLINOIS

Arkansas: Frog-eye spot on apple leaves is appearing abundantly and can frequently be seen profusely surrounding a dead twig or limb. Such limbs harboring the pycnidia have in most instances been killed by fire blight, the black-rot fungus being strictly secondary on them. (Rosen, June 15.)

Illinois: Frog-eye has always been considered of minor importance in Illinois and is usually kept in check by the scab and blotch sprays. This season it is extremely abundant even on well sprayed trees. It will cause some damage. In some unsprayed orchards, the number of spots on the foliage is such as to cover almost the entire surface. I am wondering whether continued use of oil sprays in place of lime sulfur as dormant spray may have some influence on the prevalence of this disease. (Anderson, July 1).

BACTERIAL SPOT AND BROWN ROT ON PEACH IN ILLINOIS

Bacterial spot (Bacterium pruni)

Becoming very serious throughout the state. Has been evident since the middle of May. Defoliation becoming serious in some orchards but not as bad as usual on account of excessive rains. Fruit infection unusually heavy. First observed when fruit was less than one-third its mature size. (Anderson, July 1)

Brown rot (Sclerotinia americana ?)

Weather conditions have been ideal for brown rot during June. Numerous brown rot cankers with conidial masses on surface may be observed in all peach orchards. Young injured fruit is rotting. Also, maturing fruit of early varieties. Main crop (Elberta & Hale) where sound and free from curculio is free of brown rot. Cankers mostly originated from diseased fruit last year. Some from blossom blight this year. (Anderson, July 1).

ADDITIONAL REPORTS OF ORANGE RUST OF BRAMBLES

Arkansas: What appears to be the short cycle rust (Kunkelia nitens) very abundant and severe on some varieties. The worst disease of blackberry in most localities. (Young, June 1)

Missouri: Orange rust (Cymnoconia interstitialis) is quite severe on cultivated blackberries in central Missouri and promises to curtail the yield to a great extent. Many plantings have every leaf completely covered, the first infection showing up about May 15. (Scott, Jul. 1).

Illinois: Gymnoconia interstitialis more abundant than usual this season on wild blackberries but have had few reports of serious outbreaks on cultivated plants. (Anderson, July 1).

YELLOWING OF STRAWBERRY LEAVES IN MONTANA

"Many specimens of strawberries with yellow leaves are being sent to us. Gardens in Bozeman contain many patches of strawberries in which high percentages of the leaves are yellowed. This condition appears to be associated with winter injury and, in Bozeman, the plants sometimes recover. The symptoms resemble those of the strawberry yellows (virus) disease that occurs in serious amounts in the Bitter Root valley. I have transplanted some local strawberries to the greenhouse to observe possible development or recovery." (Young, June 15).

BARLEY STRIPE (HELMINTHOSPORIUM GRAMINEUM)

Virginia: The stripe disease of barley seems to be unusually prevalent in the State this year. More or less infection in practically every field. Many heads are being blasted as a result of infection. (Wingard, June 15).

West Virginia: In the eastern part of the state a severe infection of stripe was observed in one field. (Archer, July 1).

Wisconsin: More than usual on experimental plots, Madison. Some new hybrid strains are showing marked resistance. (Vaughan, July 1).

Iowa: Severe at Ames on Minnsturdi barley. About 20% of plants. (Porter, June 1).

FLAX WILT (FUSARIUM LINI)

North Dakota: Developing fast in many North Dakota fields. The warm weather prevailing early in the month was very favorable for this disease. (Brentzel, June 15).

REPORTS ON ALFALFA DISEASES FROM VIRGINIA, WEST VIRGINIA, IOWA AND MISSOURI

Virginia: Leaf spot (Pseudopeziza medicaginis) was severe on alfalfa this season. Some crops had to be cut early to prevent defoliation. (Wingard, June 15).

West Virginia: Leaf spot (Pseudopeziza medicaginis). In most fields the damage was slight but cases were found where the lower half of the plants were defoliated in the first crop. (Archer, July 1).

West Virginia: Crown rot, undetermined. This crop is comparatively new to the state. Fragmentary evidence would indicate the presence of the crown rot which is so destructive in mid-western states.(Archer, July 1).

Iowa: Yellow leaf blotch (Pyrenopeziza medicaginis) is common in northwest Iowa. About 2 per cent damage. (Porter, May 30).
White spot, undetermined. One report. (Porter, May 25).
Bacterial wilt,(Aplanobacter insidosus). About 2 per cent in one field in Muscatine county. Field three years old. (Porter, May 10).

Missouri: Wilt, undetermined. Much wilting and blighting of alfalfa plants is again prevalent in Missouri. The disease does not seem to be confined in every case to older plantings but numerous new seedings are seriously affected. The causal agent may not be the same in both cases, however. Some of the injury in old fields is in the nature of a crown rot that might be attributed to winter injury, inasmuch as the winter of 1927-1928 was unfavorable for alfalfa. Many of the fields were exposed to much freezing and thawing all winter with practically no snow on them. So far this season, little evidence has been found of the presence of Aplanobacter insidiosum McC. in this state. (Scott, July 1).

ALFALFA DISEASES IN GALLATIN AND PARK COUNTIES, MONTANA.

"Yellow leaf blotch (Pyrenopeziza medicaginis). Very abundant in several fields; particularly abundant in one field. Liable to do damage only in this one field where, with Pseudopeziza, it will defoliate the lower one-third of the stems."

"Leaf spot (Pseudopeziza medicaginis) is abundant in 10 to 100 per cent infestations in nearly all fields. In one field in the Spring Hill region, it and Pyrenopeziza will do some damage as described above."

"White spot (cause unknown) Occurs in many fields at the present time. In most cases less than 1 per cent of the plants are affected. In one field near Livingston scattered patches are badly injured so that the yield and quality of the hay is impaired. One of the two seriously infested fields was not irrigated. Hence there can be no correlation with irrigation water in that case. A shower of about one-fifth inch was the only water the field had received recently."

"Albino (cause entirely unknown). As usual, albino alfalfa plants are now visible in June in Park County. These white, purple, or yellow stems and leaves are very conspicuous. They were as abundant as one per cent in the edge of one field, but were seen as only scattered plants in the other field. This disease is less abundant than it was in 1927."

"Frost injury. Two frosts occurred about June 8 and killed or injured the tops or scattered top leaves of many plants in many fields. Serious damage occurred."

"Downy mildew (Peronospora trifoliorum) Appears to be abundant in central Montana. Infestations of 100 per cent occur in some fields in Park County, where this disease is doing a small amount of damage. (Young, June 18)."

POTATO PSYLLID YELLOWS IN UTAH

"In a recent survey, June 12 to 16, the new potato disease psyllid yellows (cause unknown but induced by Paratrioza cockerelli) was found generally distributed in the early potato sections including the counties of Utah, Salt Lake, Davis, Weber, and Boxelder. The disease was located in every field visited varying in plants affected from 2 to 60 per cent. The most severe form of the trouble was found in Utah and Boxelder Counties. In no case were the insects found in numbers equal to last year and it is quite evident that the loss will be correspondingly less. It is evident that considerable damage to the state's crop will result although it is impossible at present to predict the outcome in certain regions. Letters indicate a possible total failure of crop in Fruita district in Colorado." (Richards, June 25).

LATE BLIGHT OF POTATO APPEARS IN PENNSYLVANIA

'Late blight (Phytophthora infestans) was observed on June 26 in several potato fields near Downingtown in Chester County, Pennsylvania by Messrs. Nixon, Kirby, Beach and Haskell. The disease occurred scatteringly over the fields and seemed to be mostly on the new growth and for the most part, confined to single leaflets.

This is apparently the earliest report of blight occurrence in Pennsylvania and the second report from Chester County in ten years. It, therefore, seems that conditions have been particularly favorable for the disease in that section this year. Dr. Kirby has sent notices of this occurrence to Pennsylvania County agents and called their attention to the need for thorough and persistant applications of Bordeaux.

'Pathologists in other late potato states should take note of this and be ready to issue warnings as soon as the disease puts in an appearance. (Haskell)